

WHAT IS CLAIMED IS:

1. A signal transmission line for transferring a modulating signal from a signal source having an output impedance of 50 Ω to an optical modulator, said signal transmission line comprising:

a signal line and at least one associated ground line, said signal line having a characteristic impedance of 35 to 47 Ω ; and

10 a termination resistor having a resistance of 50 to 150 Ω .

2. The signal transmission line according to claim 1, further comprising a series resistor having a resistance of 10 Ω or below.

15

3. The signal transmission line according to claim 1, wherein said signal line and said associated ground line form a micro-strip line.

20 4. The signal transmission line according to claim 3, wherein said signal line has a width larger than a design width of a signal line having a characteristic impedance of 50 Ω in another micro-strip line.

25 5. The signal transmission line according to claim 1,

wherein said at least one associated ground line includes a pair of ground lines extending on a common plane with said signal line to sandwich therebetween said signal line, whereby said signal line and said ground lines form a
5 coplanar waveguide.

6. The signal transmission line according to claim 5, wherein said at least one associated ground line further includes a ground plate opposing said signal line and said
10 ground lines with an intervention of an insulator.

7. The signal transmission line according to claim 5, wherein a gap between said signal line and each of said ground lines is smaller than a design gap between a signal
15 line and each of a pair of ground line in another coplanar waveguide.

8. A laser module comprising a laser diode, an optical modulator for modulating laser emitted by said laser diode,
20 and a signal transmission line, said signal transmission line comprising:

a signal line and at least one associated ground line, said signal line having a characteristic impedance of 35 to 47 Ω ;

25 a series resistor having a resistance of 10 Ω or below;

and

a termination resistor having a resistance of 50 to 150 Ω .

9. A signal transmission line for transferring a modulating
5 signal from a signal source having an output impedance of R_1
 Ω to an optical modulator, said signal transmission line
comprising:

a signal line and at least one associated ground line,
said signal line having a characteristic impedance of $0.7R_1$ to
10 $0.94R_1$; and

a termination resistor having a resistance of R_1 to $3R_1$.